ECOSYSTEM STATUS INDICATORS

Benthic Communities and Non-target Fish Species

Bering Sea Crabs

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Last updated: November 2005

An annual NMFS trawl survey is conducted in the Eastern Bering Sea to determine distribution and abundance of crabs and demersal fishes. Crab population abundance indices are determined using an 'area-swept' method in a stratified systematic sampling design. Current crab abundances are low relative to historic peaks (Figure 77), and of six crab fisheries included in the FMP, 3 are open, 3 are closed, and 4 are at overfished levels of abundance. Rebuilding plans are in place for all overfished stocks. Fisheries will be managed in 2005 under the new eastern Bering Sea/Aleutian Islands crab rationalization regulations with individual quota shares for all eligible participants.

BRISTOL BAY RED KING CRAB.

The mature biomass of Bristol Bay red king crab was highest in 1980, declined and has remained relatively low since 1983. The total mature biomass of crabs has remained above 50% of the MSY biomass and, therefore, the stock is not considered overfished. The 2005 survey abundance index of legal males declined (-22%) relative to 2004, while that of pre-recruit males (+58 %) and mature females (+35%) increased. The survey index of mature biomass has been stable over the past three years and is at its highest level since the early 1980s (Figure 77). The 2005 fishery will open October 15 with a total allowable catch of 8,300 metric tons (18.3 million pounds) or about 10 % of the survey index of mature biomass.

PRIBILOF ISLANDS RED KING CRAB.

Mature biomass of Pribilof Island red king crab was well below 50% MSY in the 1980s but has been higher than the 50% MSY since 1991 and is not considered overfished. The 2005 survey abundance index of large male crabs decreased by ca 69% relative to 2004 while that of mature females decreased by ca 129%. Almost no pre-recruit males were captured in either year's survey. Although not considered overfished, the fishery remains closed because of considerable uncertainty as to population abundance and due to concerns of unacceptable levels of incidental catch of the severely depressed blue king crab in the Pribilof District. The fishery will remain closed in 2005.

PRIBILOF ISLANDS BLUE KING CRAB.

Blue king crab in the Pribilof Islands area have been considered overfished since mature biomass fell below the 50% MSY in 2002. Abundance of mature biomass continued to decrease in 2004 to the lowest on record and remains very low in 2005. Little or no recruitment is apparent in the population which has been declining continuously since 1995. Continued warm conditions in waters surrounding the Pribilof Islands may be contributing to the decline. The fishery will remain closed in 2005.

ST. MATTHEW ISLAND BLUE KING CRAB.

Blue king crab in the area of St. Matthew Island are also considered overfished. The population has declined steeply since 1998. Legal male abundances decreased by 53% and while pre-recruit male increased by 159 % relative to 2004, both population segments remain at very low abundance. Indices of female crab abundances are not considered meaningful due to their preference for inshore, rocky, hence untrawlable habitat. The fishery will remain closed in 2005.

EASTERN BERING SEA TANNER CRAB.

The Eastern Bering Sea tanner crab population was high in the early 1980s and from 1988-1992. The population has been low since then and the 2005 survey indicated that recruitment is improving. The 2005 mature biomass was above 50% MSY and at its highest levels since the mid-1990s (Figure 77). The

abundance indices for mature portions of the stock, legal males (+112 %), pre-recruit males (+60 %) and mature females (+150 %) all increased substantially. There is some concern as to the validity of such large increases due to imprecision of survey indices and because no such increases were anticipated from 2004 information. Under the terms of the rebuilding plan, a small fishery will be allowed in 2005 for the first time since 1996. The 2005 fishery will open October 15 with a total allowable catch of 730 metric tons (1.6 million pounds) or about 1 % of the survey index of mature biomass.

EASTERN BERING SEA SNOW CRAB.

Snow crab recruitment was higher during 1979-1987 than in other years (Figure 78). The two highest recruitment events occurred in 1980 and 1987, after which, recruitment was low. Low recruitment estimates during 1988-1998 could be due to fishing, climate, and/or a northward shift in snow crab distribution. A northward shift in distribution could result in a decrease in reproductive output, because snow crab may only spawn every other year (rather than annually) in colder temperatures, such as those found further north.

The mature biomass of Eastern Bering Sea snow crab was moderate to high in the early 1980s and from 1987-97 (Figure 77). The biomass declined sharply from 1998 to 1999 and the stock is considered overfished. Increases in abundance noted in 2004 continued but were more substantial in 2005, the abundance indices for commercial sized males (+5%) pre-recruit males (+236%) and mature females (+102%) all increased. A small fishery will be allowed under the terms of the rebuilding plan. The 2005 fishery will open October 15 with a total allowable catch of 16,900 metric tons (37.2 million pounds) or about 6 % of the survey index of mature biomass.

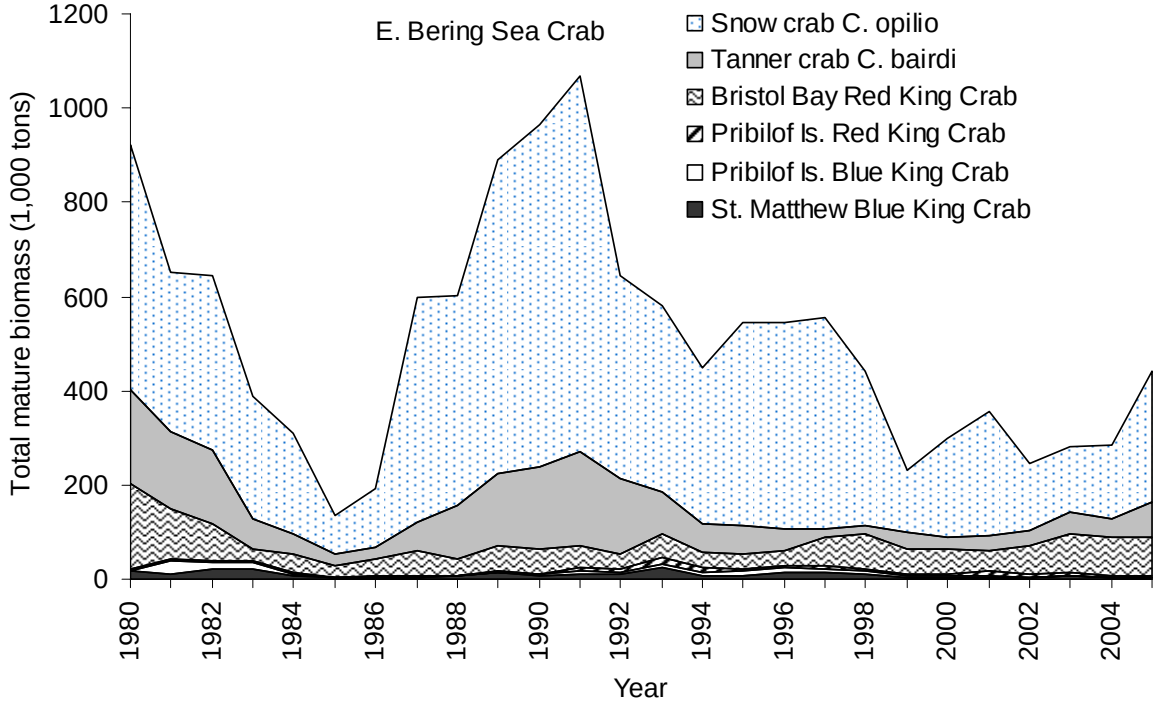

Figure 77. Total mature biomass of Eastern Bering Sea crab populations, 1980-2005.

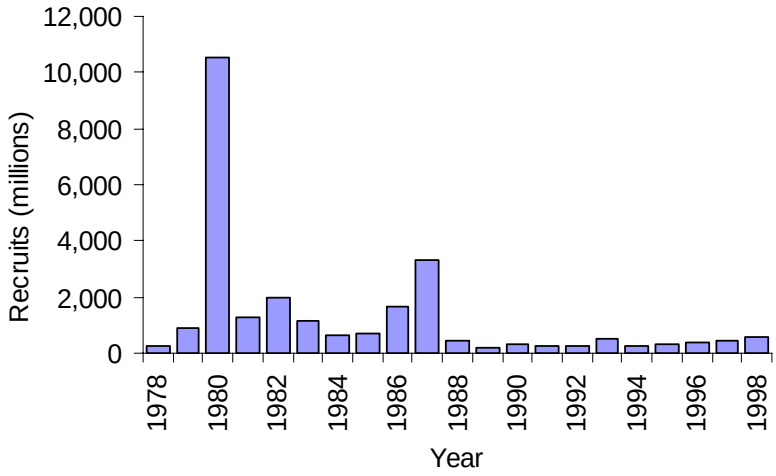

Figure 78. Snow crab recruitment from 1978 to 1998 in millions of crabs that are 25 mm to 50 mm in carapace width and lagged by 5 years (to fertilization year).